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ABSTRACT

Each of four instructors was assigned two sections of introductory psychology, one experimental and one lecture/control. Experimental sections were divided into teams of five to eight students and complied with the following schedule for each of seven two-week unites. In the first class meeting, subject matter was introduced and discussion topics assigned. In subsequent class periods, half the students assembled to present their projects while the remaining half met outside of class for preparation. Discussion was monitored for comparability to lecture material. Course effectiveness and popularity were measured at the end of the semester. Teaching method was not differentially effective as measured by either quiz or final exam scores. However, significant method-by-instructor interactions were observed on the popularity measures. The results are summarized as follows: (1) for two instructors the lecture method was rated more favorably, although students in the experimental sections reported more group discussion; (2) for a third instructor the lecture approach was more popular and produced greater discussion; and (3) for the fourth instructor increased favor and discussion were observed in the experimental team method. Preference for a given teaching method appears here to be highly dependent on the particular instructor. (Author/MSE)

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Evaluation of Peer Discussion as an Alternative to
Lecture in the Teaching of Introductory Psychology¹

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Small, discussion-oriented classes are generally preferred by instructors and students alike. Yet required or popular courses, such as introductory psychology, often are faced with large enrollments and limited staffing. As a consequence, most instructors are forced to rely on the traditional lecture format which allows little student participation.

William Gnagey (1979) has recently presented an alternative to the impersonal lecture. He has termed his approach the "laboratory team method" of teaching, because it adds an experiential element via student-led discussion groups. Briefly described, the laboratory team method entails dividing the class into teams of approximately eight students who select a leader and design and execute one or more research projects. The teams may also be asked to prepare answers to questions on course materials. The team leaders meet periodically with the instructor and submit written reports on team activities. The following study was designed to empirically test the popularity and effects on academic performance of a variant of Gnagey's method. The modifications to his approach

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were as follows: First, discussion questions and projects designed to illustrate current course content were assigned in place of long-term research projects. Second, team leadership was rotated throughout the semester. Finally, team leaders presented their reports in class for group discussion, rather than in writing to the instructor. The use of rotating team leaders was prompted by the desire to ensure maximal individual participation.

Method

Four instructors, two men and two women, participated in the study. Each was assigned two sections of introductory psychology during a spring semester. One section per instructor was designated the experimental section and was taught by the laboratory approach. The second was a control section which was taught by means of lecture and demonstrations. Class enrollment ranged from 25 to 100 students.

Beginning with the third week of the semester, students in the experimental sections were divided into teams of 5-8 persons on the basis of alphabetical position on the class roll. Minor procedural variation occurred as the result of scheduling differences between Monday-Wednesday-Friday and Tuesday-Thursday sections. However, the general procedure was as follows: Course content was divided into seven two-week units in accordance with the organization of the textbook, Introduction to Psychology by Brown and Weiner (1979). In the first class meeting of each unit, the topic area was introduced and projects were assigned. Projects involved problems to solve, anecdotes or case histories to analyze or evaluate, and psychological principles to be applied to experiences in the

students' lives. In some instances, teams were assigned either an affirmative or a negative position on an issue and required to debate in class. Each instructor was responsible for formulating his or her own projects.

During every class period (except the last) of each unit, half of the teams assembled to present their projects while the remaining teams met away from the classroom for preparation. If a team met in class for one class period, it met outside of class for the next. Thus, attendance was never greater than half of the class enrollment, which allowed more opportunity for student discussion and individualized attention from the instructor.

Team leadership rotated alphabetically from one team meeting to the next, and most students served as a leader at least once. If the appointed leader failed to attend a team meeting, the person who was next in line assumed the leader role. It was the leader's responsibility to both prepare and present the team's report to the class.

In class meetings, the students were encouraged to assume a circular seating pattern with the instructor. Leaders comprised the inner edge of the circle and their respective team members sat behind them. Each leader was given three minutes to present his or her project report. Following the presentation, all students had the opportunity to ask questions. Although the leaders were obligated to present the initial report, the other members of the team were allowed to add supplemental material, advise the leader on replies to questions, and, if the leader chose to defer, reply directly to questions.

During the discussion, the instructor recorded the topic areas presented and clarified misinformation, if necessary. If the students failed to introduce content that was covered by lecture in the control section, the instructor asked the team leaders questions designed to elicit coverage of the material. Finally, during the last 15 or 20 minutes of class, the instructor used his or her lecture outline to summarize the material.

In the last class period of each unit, the entire class assembled for a unit quiz which consisted of 25 multiple-choice and/or true-false questions based on both textual and in-class material. The final exam for the course was made up of 50 multiple-choice items taken solely from the text and was consistent across all course sections. A student's final grade was determined by summing his or her five highest quiz scores, grade on the final exam, and a maximum of five extra-credit points earned by participation in extracurricular research projects. The course syllabus, text assignments, quiz schedule, and final examination were the same for both experimental and control sections.

Several days before the final exam, all sections were administered a course evaluation form which was designed for the study. The item content is summarized in Table 1. Seven of the items were constructed on the basis of suggestions for student rating items made by McKeachie (1979). Of these, five related to factors identified in analyses of student ratings, while the remaining two were similar to items which have been validated against teacher effectiveness. Eight additional items were developed to tap some of the educational, personal, and social influences of the discussion

format. Each item was rated on a 5-point Likert-style scale ranging from "definitely yes" to "definitely no."

Results and Discussion

Quiz means were obtained for a total of 438 students and final exam scores for 435 students. Because of absenteeism on the day that rating forms were distributed, the subjective data are based on information from only 297 students, 166 from experimental sections and 131 from control sections. Effectiveness and popularity data were analyzed by means of 2×4 (condition by instructor) least-squares analyses of variance (for unequal n's). Instructor was treated as a random factor. Results of the data analyses are presented in Table 1.

Teaching method was not found to be differentially effective in terms of either unit quiz averaged or scores on the final exam. Although quiz means were significantly different from one instructor to another, this effect was not observed for the final exam. There were also no significant interactions for either measure. The influence of instructor on quiz performance may be explained by the fact that unit quizzes were comprised of 15 common items and 10 items that were developed by each instructor and administered to only his or her own students. However, when students all received the same final exam, performance was consistent across instructors as well as teaching method.

The course rating data provided more diverse results. The only significant main effect for teaching method was found for the item referring to the instructor's use of examples from personal experience. Students in the control condition reported that this

occurred more frequently than did students in the experimental classes. It is reasonable to assume that an instructor who lectures for the duration of the class period will have more opportunity to give personal examples than does one who is limited to a brief introduction of the material and a 15- or 20-minute summary. However, it should also be noted that instructors significantly differed from one another in use of anecdotal illustrations.

For all other items showing significant effects, the ratings were determined by the teaching method in interaction with the instructor. Examination of the means for each of the nine items with significant interactions revealed two findings. First, for three of the instructors the students in the control sections reported greater stimulation of interest, better organization, a more appropriate amount of work, clearer presentation of material, a better overall job of teaching, and more exploration of ideas than did students in the experimental sections. These results were reversed, favoring the experimental condition, for students of the fourth instructor.

The second finding was that for three of the instructors, the students in the experimental sections reported more encouragement to engage in class discussion, and a greater tendency to become more comfortable in speaking before a group than did students in the control sections. For the remaining instructor, it was the control students who more strongly endorsed these items. The "fourth" instructor in this case was not the same as the one whose ratings were reversed previously.

In summary, for two of the instructors the traditional lecture

approach was generally rated more favorable, although more group discussion was reported for the team method. For a third instructor, students taught by the lecture method both rated the course more favorably and reported greater discussion. For the fourth instructor, the team method received more favorable ratings and was perceived as involving more group discussion.

We may draw several conclusions from these findings. First, if the primary goal is for students to learn the text and lecture material, the actual teaching method employed makes little difference. Second, if we wish students to engage in more group discussion, this may be achieved via the team method, but at the risk of lowered teacher effectiveness ratings and general dissatisfaction. Although students taught by the team method reported greater peer interaction and related benefits in three of the four experimental sections, this approach received a barrage of complaints. Some students bailed low quiz scores on the team meetings, others described the team meetings as "the blind leading the blind," and one student complained to the department head that he had paid his tuition to be taught by a "teacher" rather than by other students. It may be speculated that many students, perhaps especially those at large state universities, have idealized expectations about the discussion process as a vehicle for learning. When faced with the reality of active learning, however, they prefer the more passive, structured approach of the lecture hall.

The fact that the experimental students of one instructor reported more group participation and higher teacher effectiveness forms the basis for a third conclusion: The student reactions to

peer discussion teams in comparison with the lecture method depends to an important extent on the instructor. From the onset, one instructor found the team approach to work very well, yet was uncertain as to the explanation. She may simply have functioned more effectively in a discussion setting, may have had a unique combination of students, or her experience may have been the result of an interaction of such factors.

The interaction between class and instructor variables remains elusive. Although three of the present instructors will probably never again use the team method in an introductory course, the concept remains viable. Further research is warranted to explore such variables as instructor characteristics, class composition, and course level. It could be hypothesized that the team method would be more popular, and possibly more effective, than the lecture approach if employed by an instructor who preferred an informal style and/or had older or more advanced students.

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Table 1
Analyses of the Effectiveness and Popularity of
Lecture vs. the Team Method

	F Values		
	Condition	Instructor	C x I
Effectiveness Measures			
Mean Quiz Scores (N=438)	1.18	12.00***	1.81
Final Exam Scores (N=435)	0.77	1.66	0.58
Instructor Ratings (N=297)			
Well-organized material	2.89	7.40***	5.07**
Got along well with students	0.31	1.67	2.51
Encouraged class discussion	2.27	6.90***	5.75***
Assigned appropriate work load	0.60	1.57	3.61**
Used examples from own experience	10.14 ^{a*}	4.94**	0.69
Presented material clearly	2.59	7.43***	3.16*
Overall, did a good job	1.75	3.03*	3.07*
Course Ratings (N=297)			
Stimulated interest	0.84	4.06**	4.49**
Engaged in more discussion	1.09	3.43*	2.63
More vocabulary practice	0.11	2.14	0.50
Became more comfortable speaking in group	0.39	2.31	3.24*
More motivated to read text	2.93	0.53	1.62
Learned more from classmates than usual	0.23	2.34	1.17
Better able to explore ideas than usual	1.23	3.84**	3.69**
Made more friends than usual	0.00	1.53	1.51

^aControl condition superior

* $p < .05$

** $p < .01$

*** $p < .001$